Fig.1

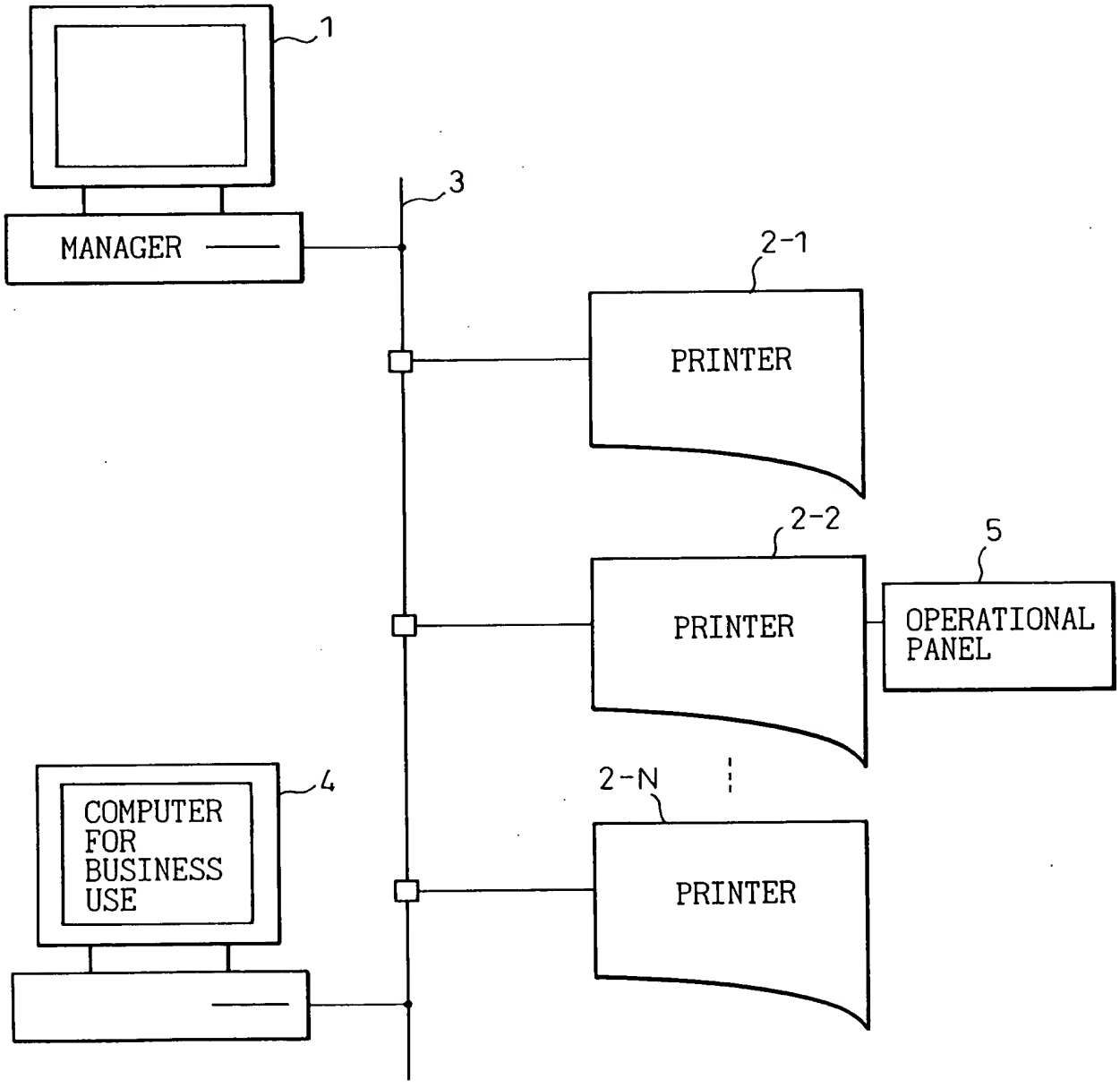

1
MANAGER
3
2-1
PRINTER
2-2
PRINTER
5
OPERATIONAL PANEL
2-N
PRINTER
4
COMPUTER FOR BUSINESS USE

Fig.2

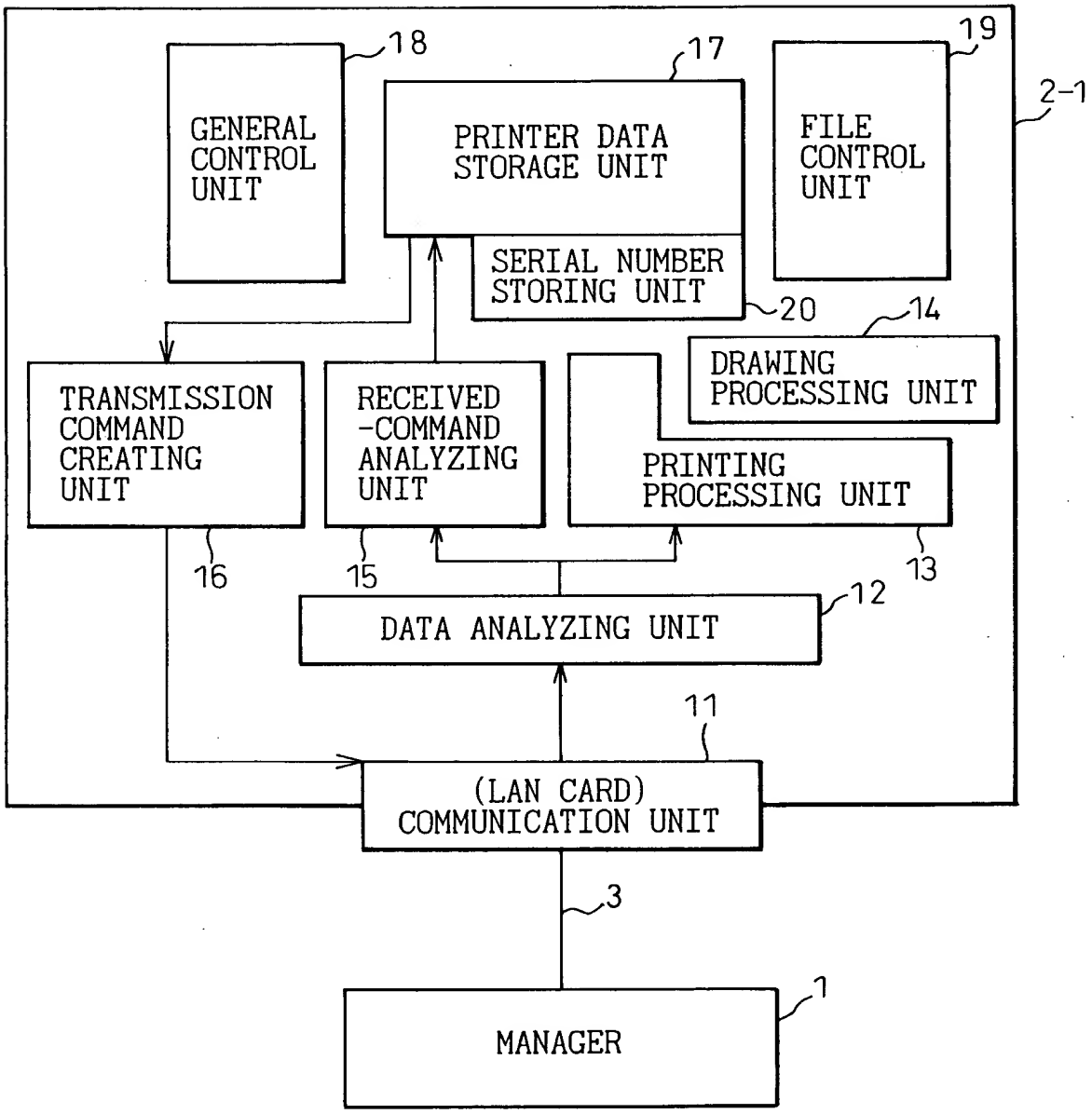

GENERAL CONTROL UNIT
18
PRINTER DATA STORAGE UNIT
17
FILE CONTROL UNIT
19
2-1
SERIAL NUMBER STORING UNIT
20
14
DRAWING PROCESSING UNIT
TRANSMISSION COMMAND CREATING UNIT
RECEIVED -COMMAND ANALYZING UNIT
PRINTING PROCESSING UNIT
16
15
13
12
DATA ANALYZING UNIT
11
(LAN CARD) COMMUNICATION UNIT
3
1
MANAGER

Fig.3

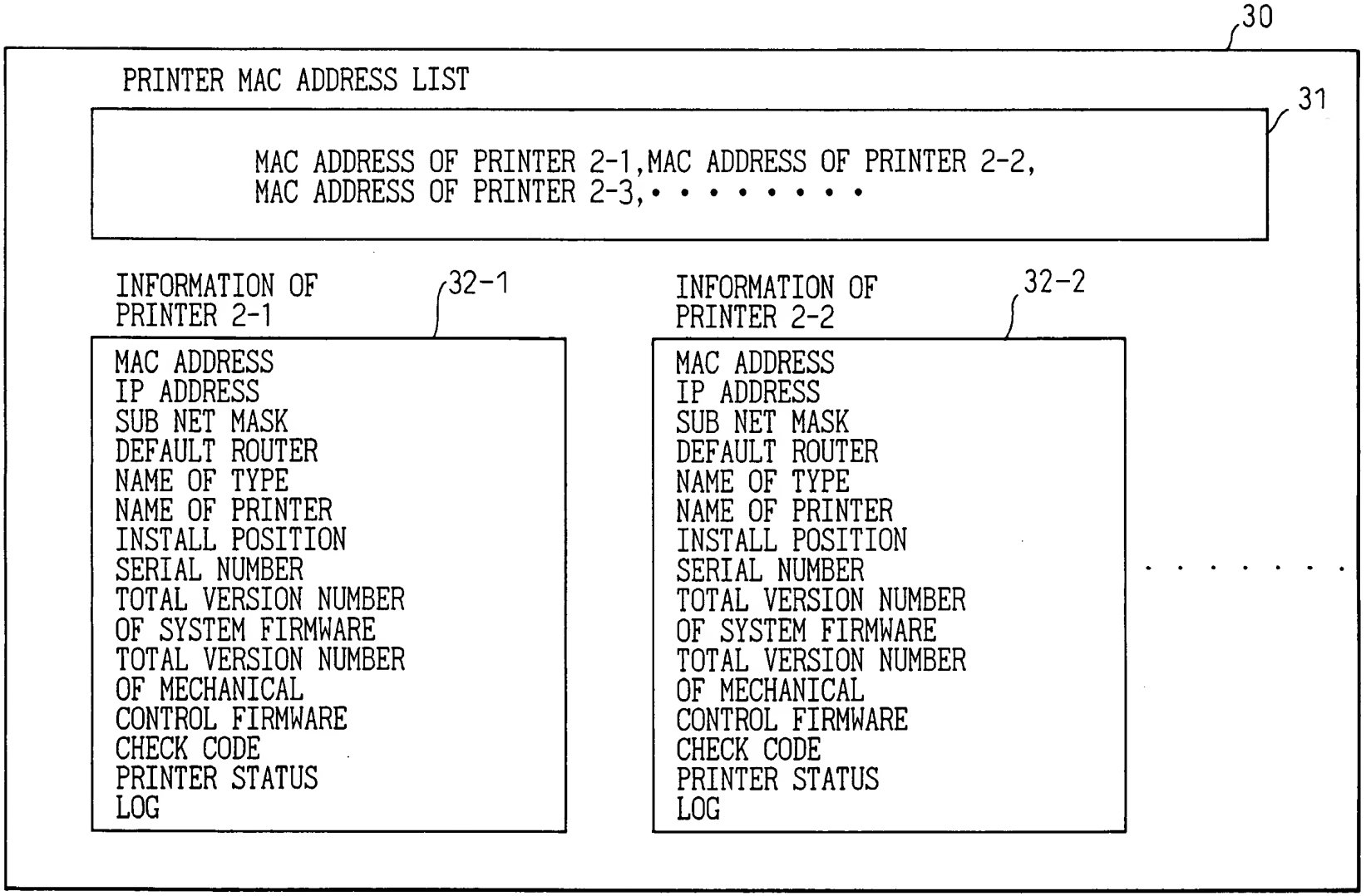

30
PRINTER MAC ADDRESS LIST
31
MAC ADDRESS OF PRINTER 2-1,MAC ADDRESS OF PRINTER 2-2,
MAC ADDRESS OF PRINTER 2-3,・・・・・・・・
INFORMATION OF PRINTER 2-1
32-1
MAC ADDRESS
IP ADDRESS
SUB NET MASK
DEFAULT ROUTER
NAME OF TYPE
NAME OF PRINTER
INSTALL POSITION
SERIAL NUMBER
TOTAL VERSION NUMBER OF SYSTEM FIRMWARE
TOTAL VERSION NUMBER OF MECHANICAL CONTROL FIRMWARE
CHECK CODE
PRINTER STATUS
LOG
INFORMATION OF PRINTER 2-2
32-2
MAC ADDRESS
IP ADDRESS
SUB NET MASK
DEFAULT ROUTER
NAME OF TYPE
NAME OF PRINTER
INSTALL POSITION
SERIAL NUMBER
TOTAL VERSION NUMBER OF SYSTEM FIRMWARE
TOTAL VERSION NUMBER OF MECHANICAL CONTROL FIRMWARE
CHECK CODE
PRINTER STATUS
LOG
・・・・・・・

Fig.4

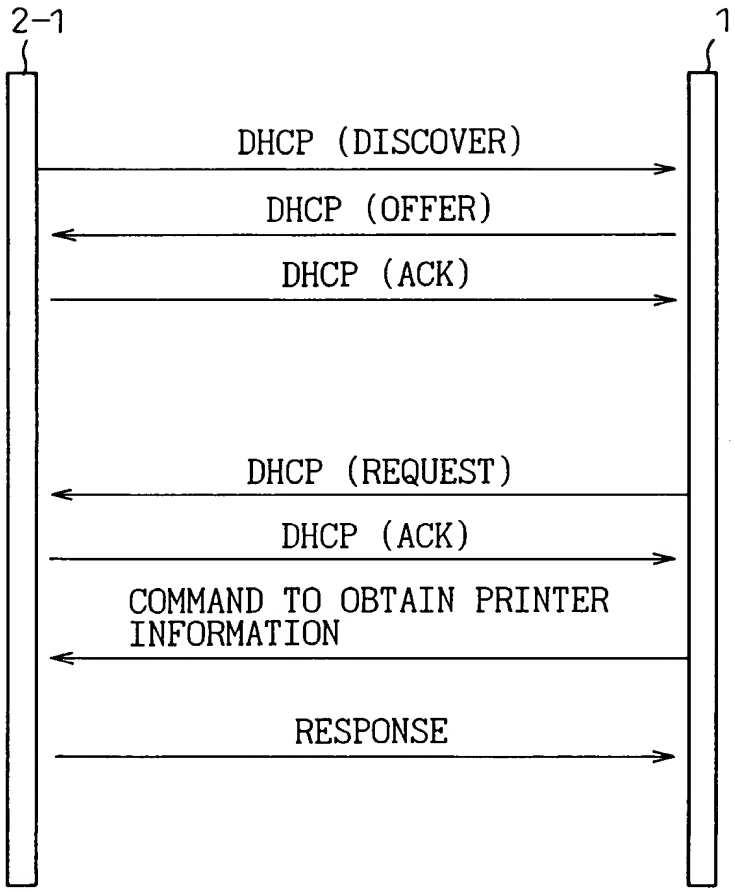

2-1
1
DHCP (DISCOVER)
DHCP (OFFER)
DHCP (ACK)
DHCP (REQUEST)
DHCP (ACK)
COMMAND TO OBTAIN PRINTER INFORMATION
RESPONSE

Fig.5

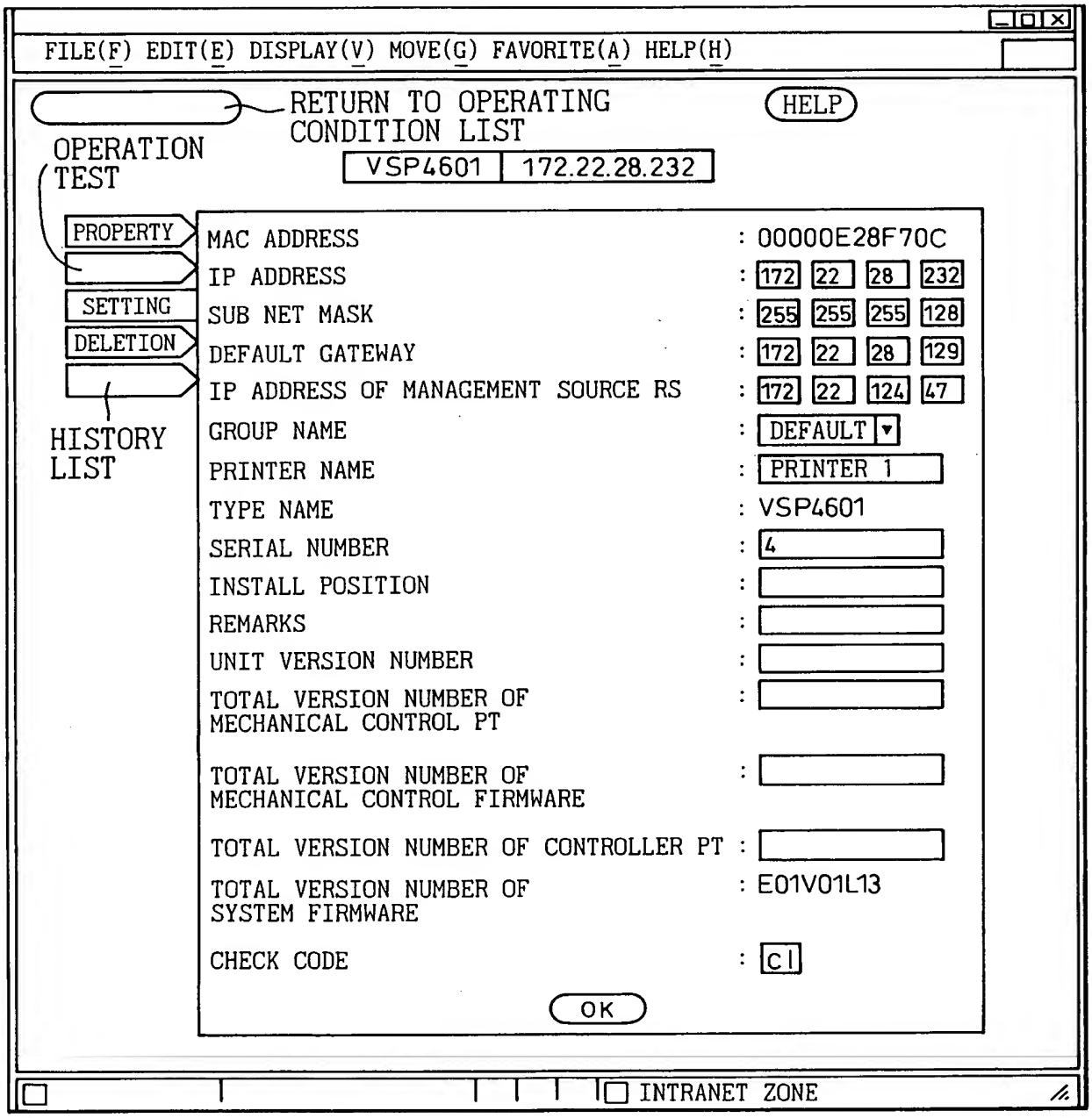

FILE(F) EDIT(E) DISPLAY(V) MOVE(G) FAVORITE(A) HELP(H)
RETURN TO OPERATING CONDITION LIST
HELP
OPERATION TEST
VSP4601
172.22.28.232
PROPERTY
SETTING
DELETION
HISTORY LIST
MAC ADDRESS : 00000E28F70C
IP ADDRESS : 172 22 28 232
SUB NET MASK : 255 255 255 128
DEFAULT GATEWAY : 172 22 28 129
IP ADDRESS OF MANAGEMENT SOURCE RS : 172 22 124 47
GROUP NAME : DEFAULT
PRINTER NAME : PRINTER 1
TYPE NAME : VSP4601
SERIAL NUMBER : 4
INSTALL POSITION :
REMARKS :
UNIT VERSION NUMBER :
TOTAL VERSION NUMBER OF MECHANICAL CONTROL PT :
TOTAL VERSION NUMBER OF MECHANICAL CONTROL FIRMWARE :
TOTAL VERSION NUMBER OF CONTROLLER PT :
TOTAL VERSION NUMBER OF SYSTEM FIRMWARE : E01V01L13
CHECK CODE : C1
OK
INTRANET ZONE

Fig.6

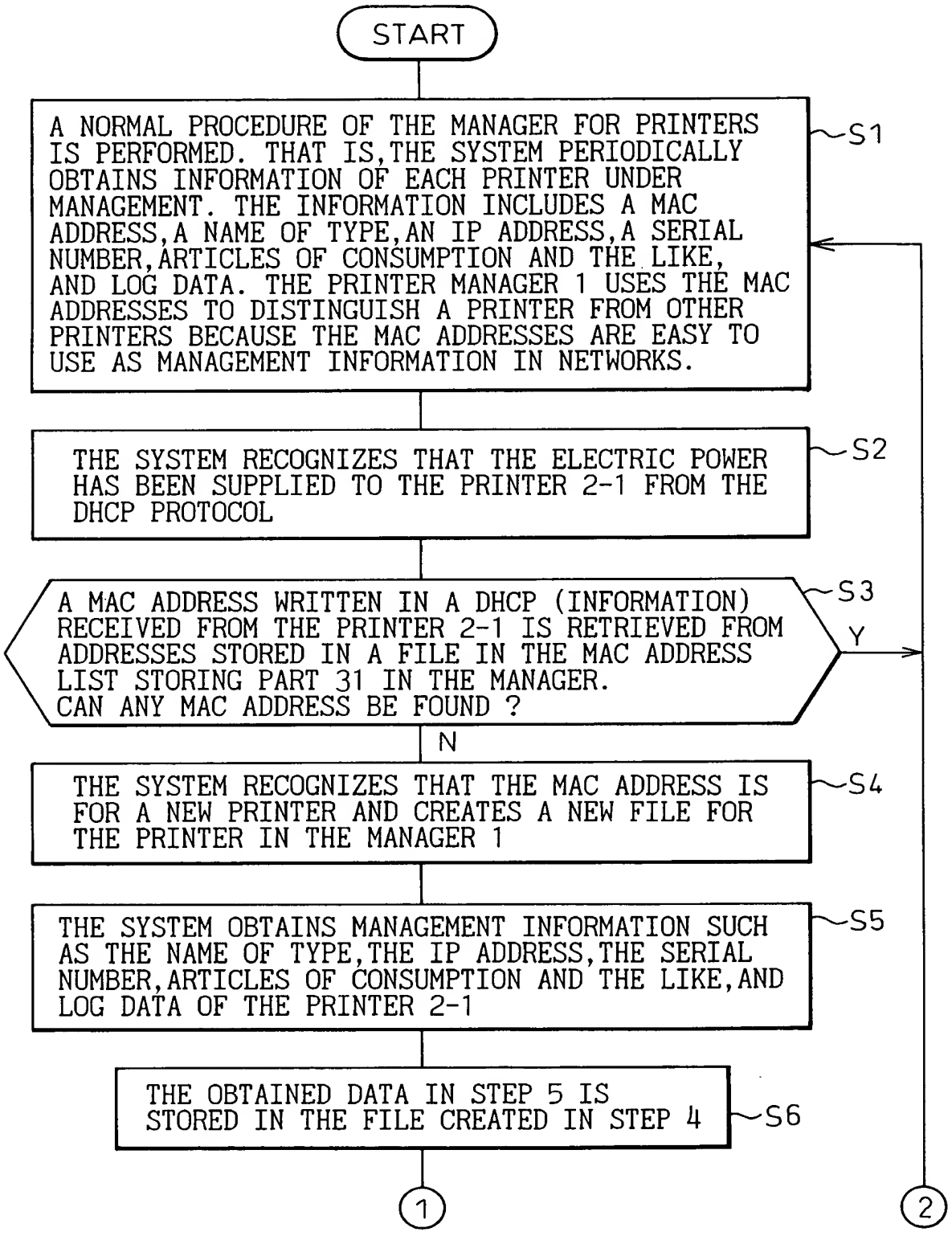
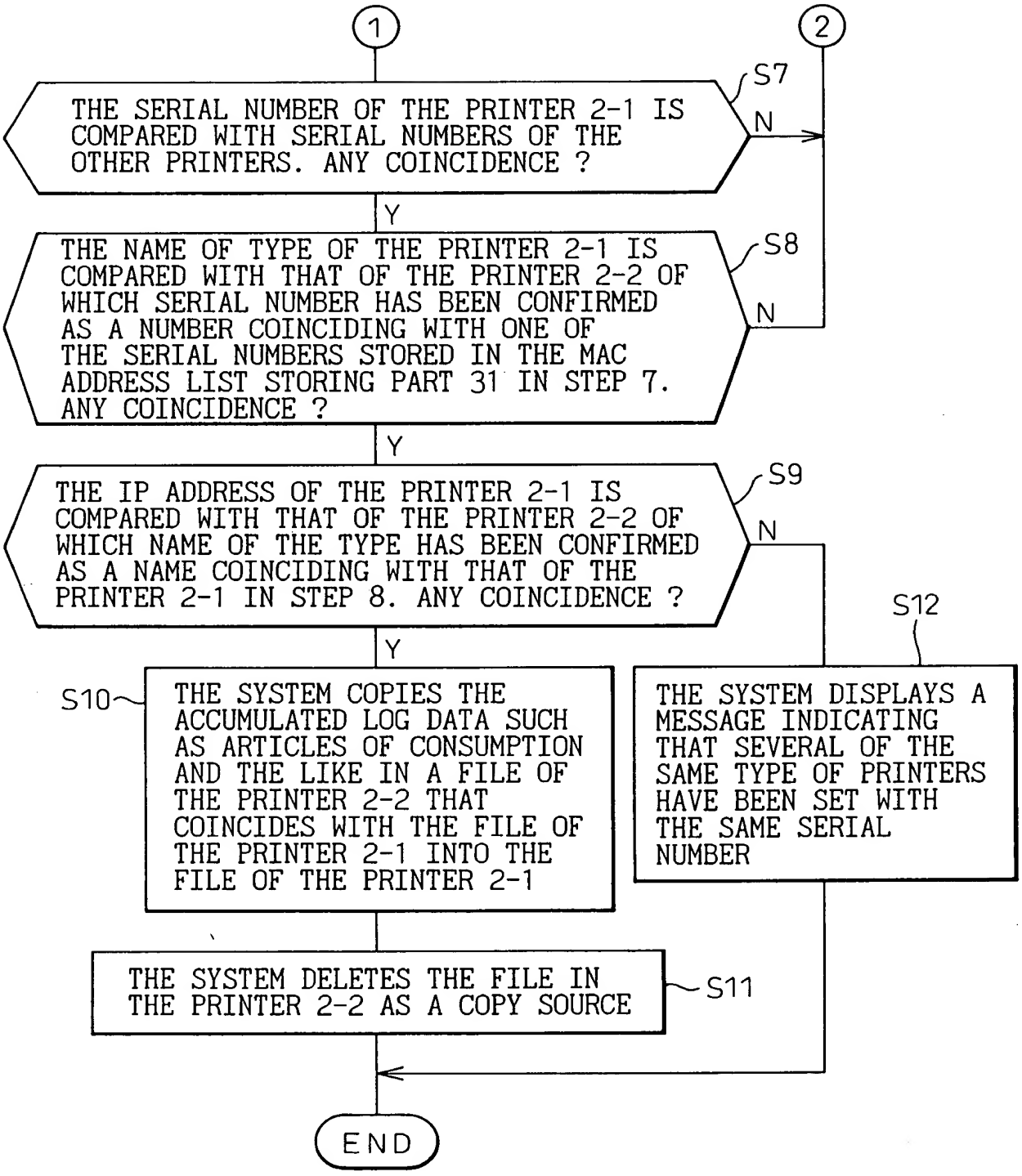

START
A NORMAL PROCEDURE OF THE MANAGER FOR PRINTERS IS PERFORMED. THAT IS,THE SYSTEM PERIODICALLY OBTAINS INFORMATION OF EACH PRINTER UNDER MANAGEMENT. THE INFORMATION INCLUDES A MAC ADDRESS,A NAME OF TYPE,AN IP ADDRESS,A SERIAL NUMBER,ARTICLES OF CONSUMPTION AND THE LIKE, AND LOG DATA. THE PRINTER MANAGER 1 USES THE MAC ADDRESSES TO DISTINGUISH A PRINTER FROM OTHER PRINTERS BECAUSE THE MAC ADDRESSES ARE EASY TO USE AS MANAGEMENT INFORMATION IN NETWORKS.
S1
THE SYSTEM RECOGNIZES THAT THE ELECTRIC POWER HAS BEEN SUPPLIED TO THE PRINTER 2-1 FROM THE DHCP PROTOCOL
S2
A MAC ADDRESS WRITTEN IN A DHCP (INFORMATION) RECEIVED FROM THE PRINTER 2-1 IS RETRIEVED FROM ADDRESSES STORED IN A FILE IN THE MAC ADDRESS LIST STORING PART 31 IN THE MANAGER. CAN ANY MAC ADDRESS BE FOUND ?
S3
Y
N
THE SYSTEM RECOGNIZES THAT THE MAC ADDRESS IS FOR A NEW PRINTER AND CREATES A NEW FILE FOR THE PRINTER IN THE MANAGER 1
S4
THE SYSTEM OBTAINS MANAGEMENT INFORMATION SUCH AS THE NAME OF TYPE,THE IP ADDRESS,THE SERIAL NUMBER,ARTICLES OF CONSUMPTION AND THE LIKE,AND LOG DATA OF THE PRINTER 2-1
S5
THE OBTAINED DATA IN STEP 5 IS STORED IN THE FILE CREATED IN STEP 4
S6
1
2

Fig.7



EPSON-0056

Fig.8

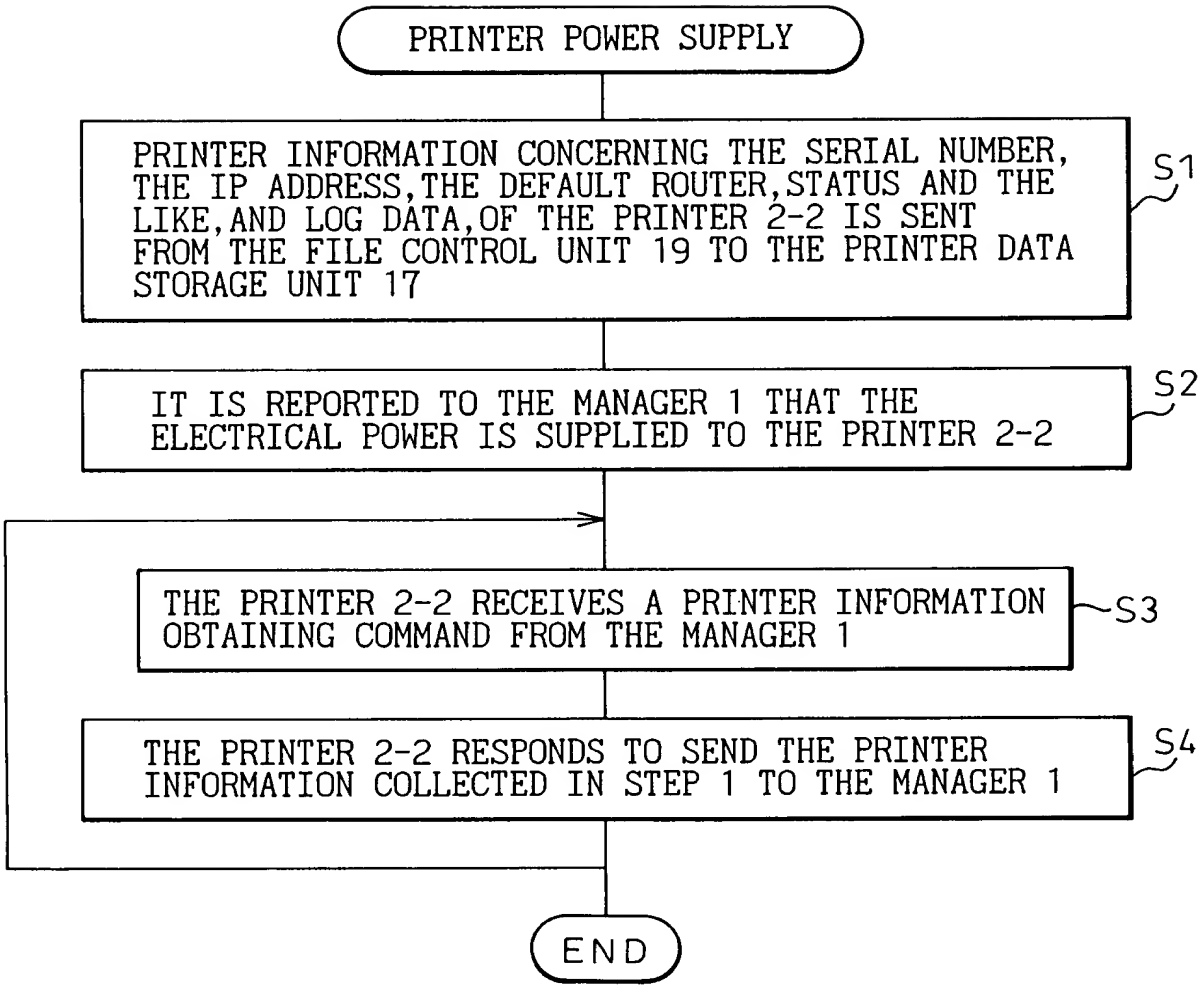

PRINTER POWER SUPPLY
PRINTER INFORMATION CONCERNING THE SERIAL NUMBER, THE IP ADDRESS, THE DEFAULT ROUTER, STATUS AND THE LIKE, AND LOG DATA, OF THE PRINTER 2-2 IS SENT FROM THE FILE CONTROL UNIT 19 TO THE PRINTER DATA STORAGE UNIT 17
S1
IT IS REPORTED TO THE MANAGER 1 THAT THE ELECTRICAL POWER IS SUPPLIED TO THE PRINTER 2-2
S2
THE PRINTER 2-2 RECEIVES A PRINTER INFORMATION OBTAINING COMMAND FROM THE MANAGER 1
S3
THE PRINTER 2-2 RESPONDS TO SEND THE PRINTER INFORMATION COLLECTED IN STEP 1 TO THE MANAGER 1
S4
END

Fig.9

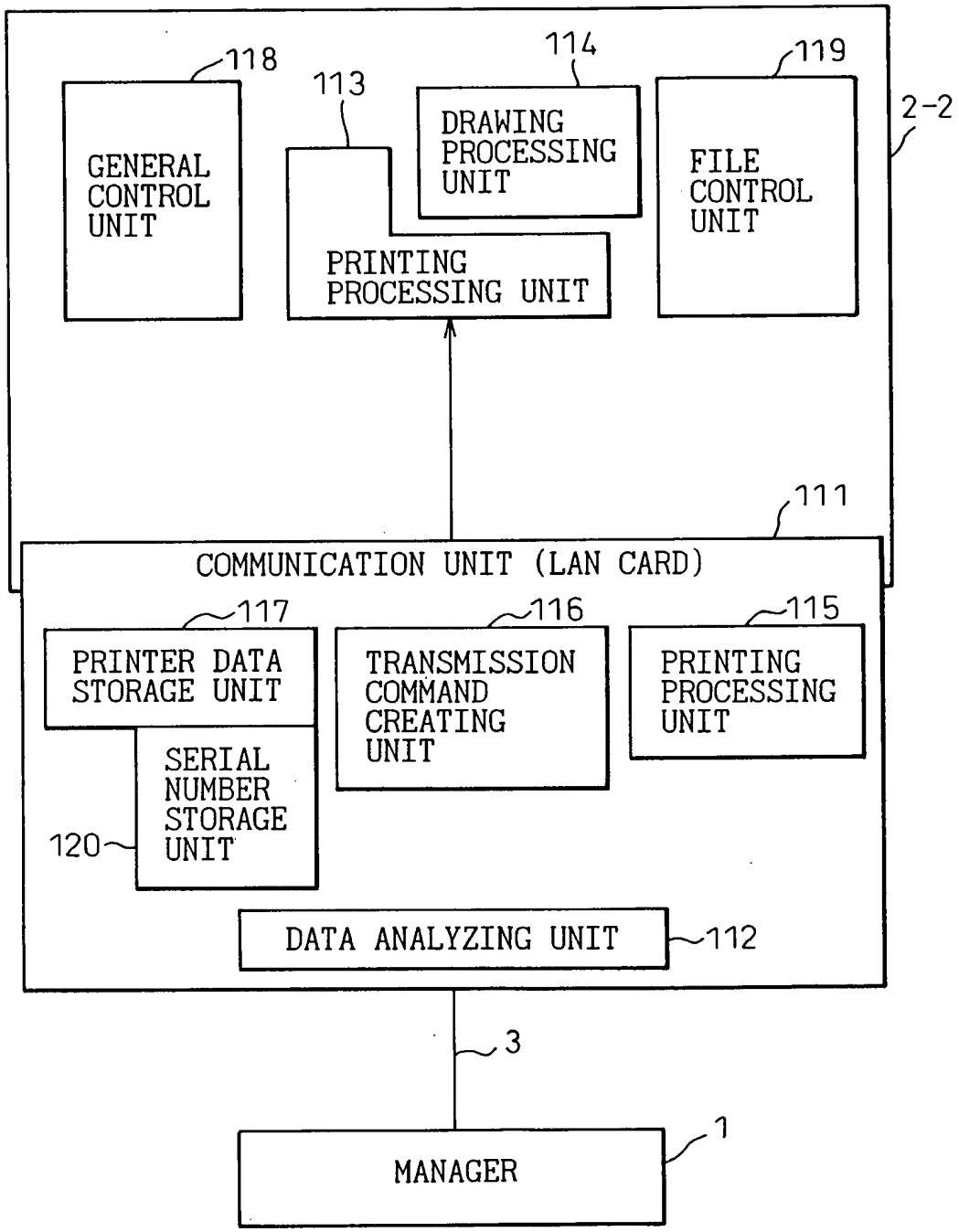
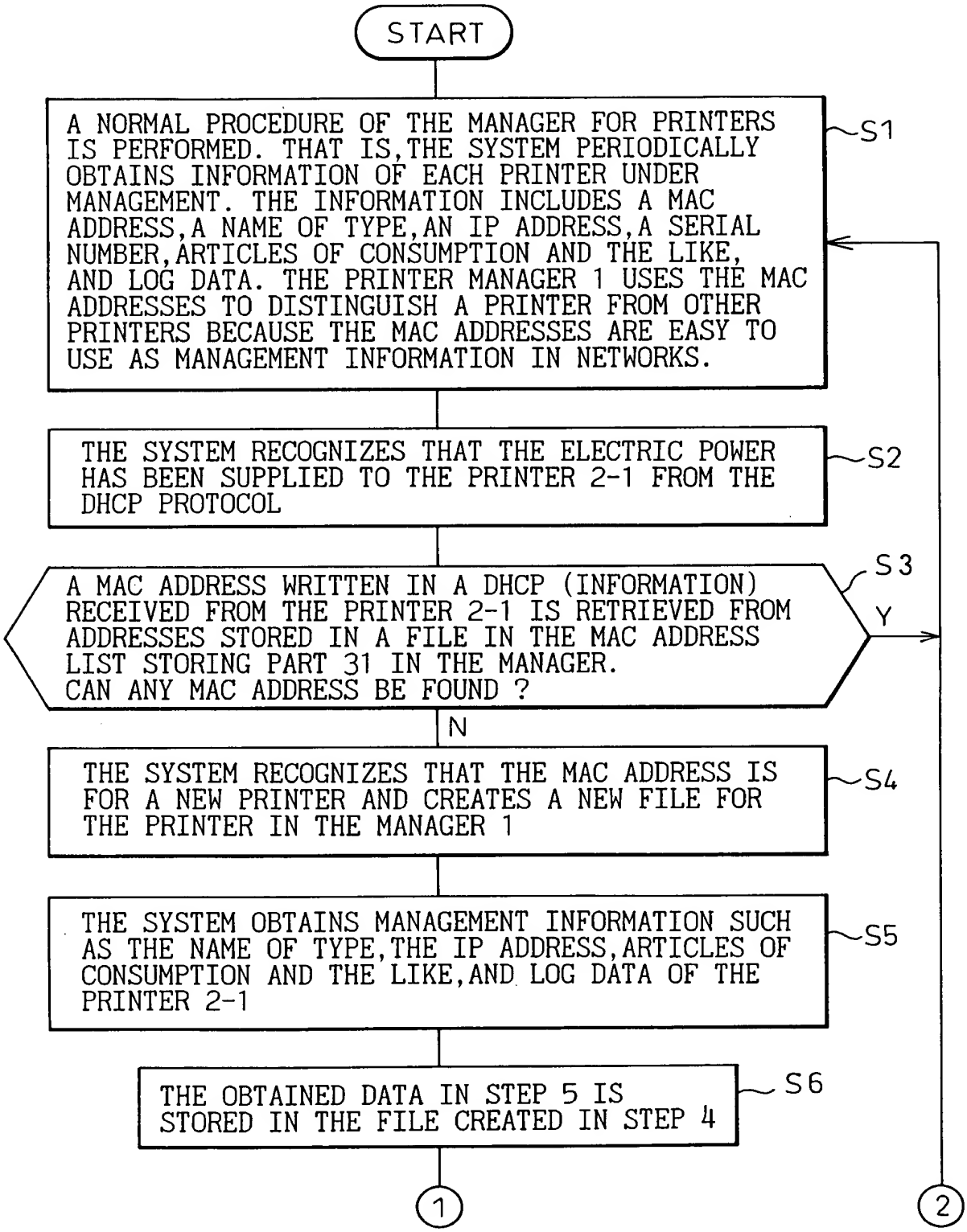

118
113
114
119
2-2
GENERAL CONTROL UNIT
DRAWING PROCESSING UNIT
FILE CONTROL UNIT
PRINTING PROCESSING UNIT
111
COMMUNICATION UNIT (LAN CARD)
117
116
115
PRINTER DATA STORAGE UNIT
TRANSMISSION COMMAND CREATING UNIT
PRINTING PROCESSING UNIT
SERIAL NUMBER STORAGE UNIT
120
DATA ANALYZING UNIT
112
3
MANAGER
1

Fig.10



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EP 0 752 670 A2

Fig.11

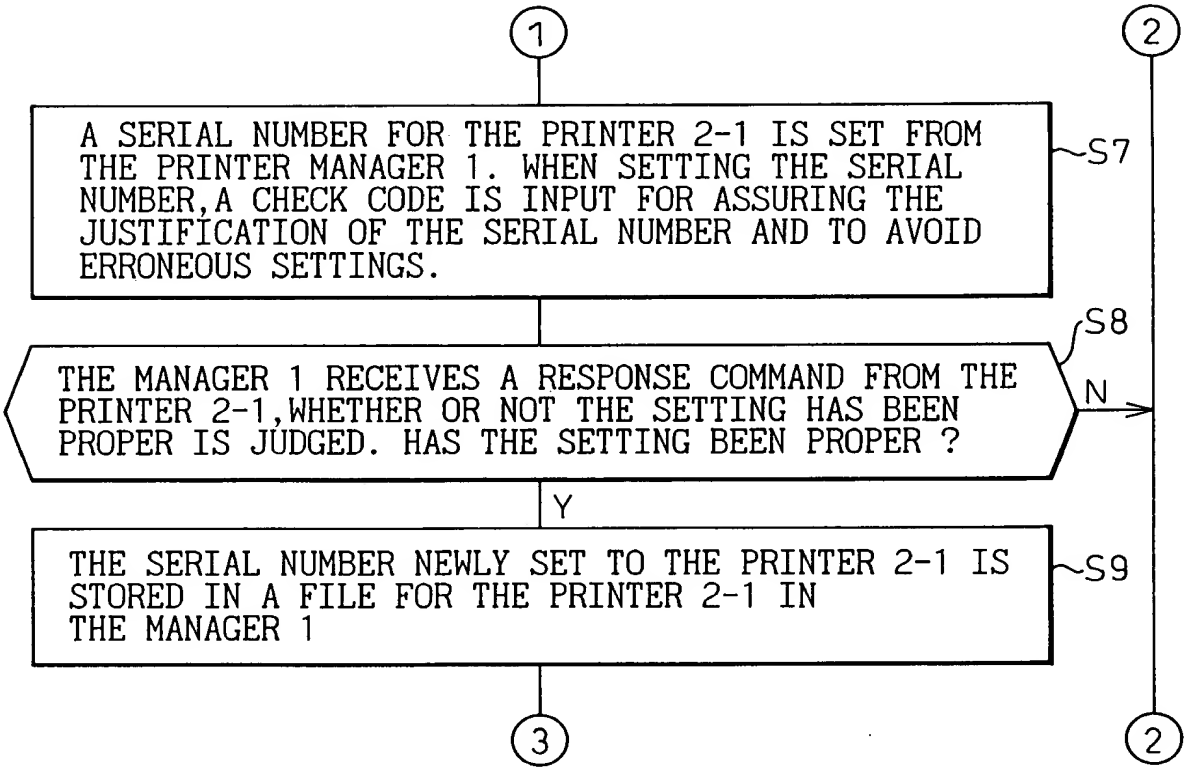
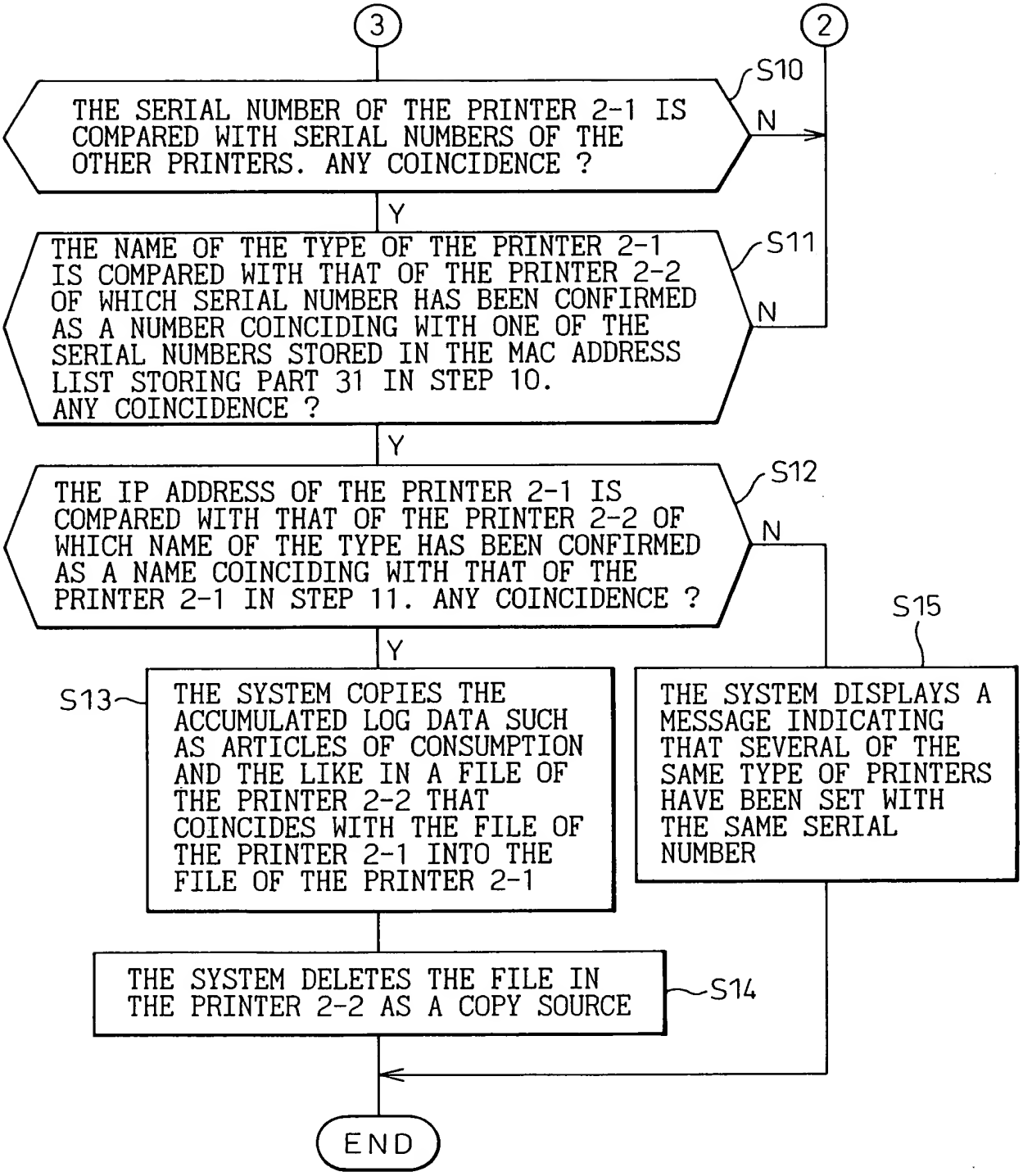


Fig.12



EP 2 051 204 A1

Fig.13

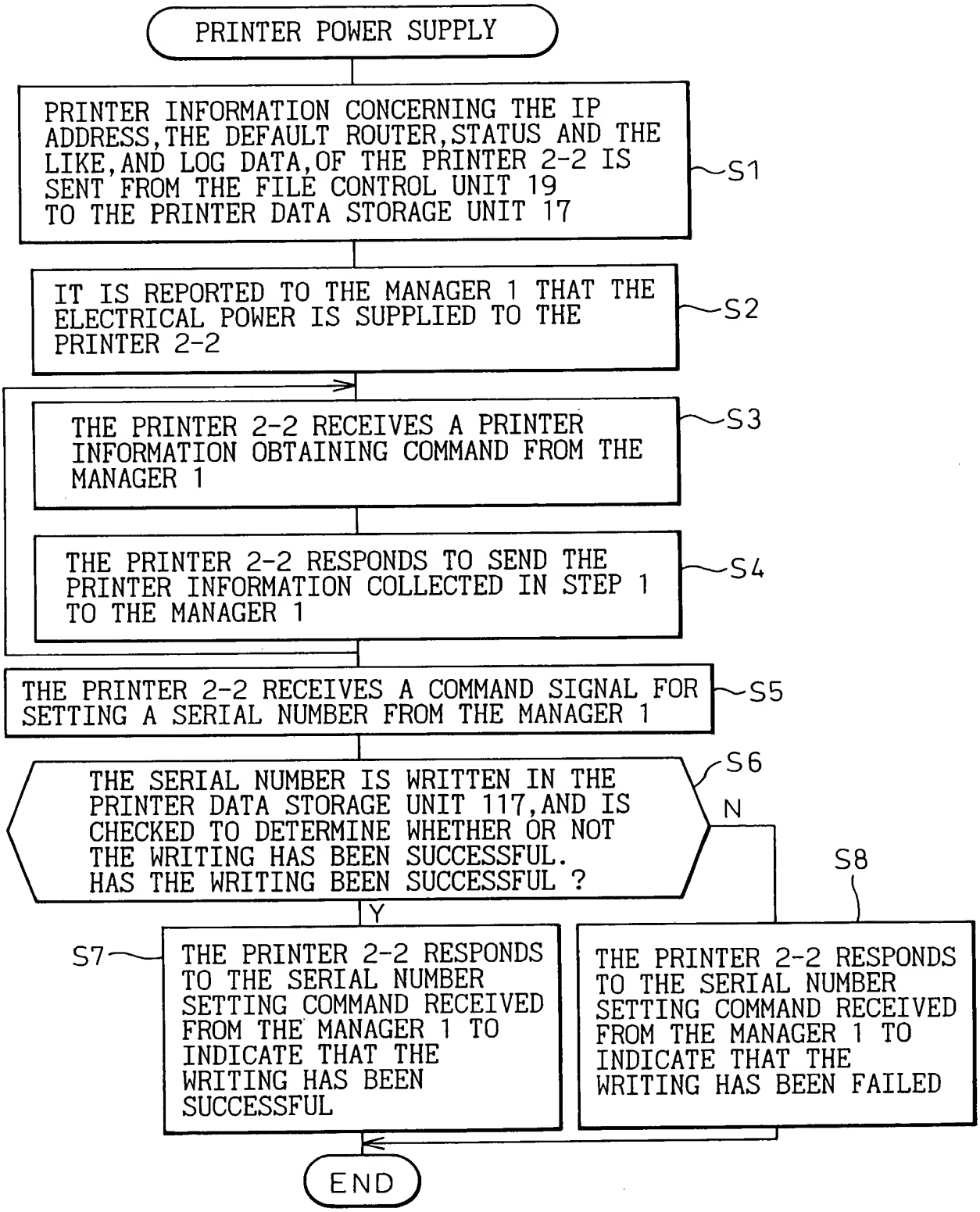


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Fig.14A

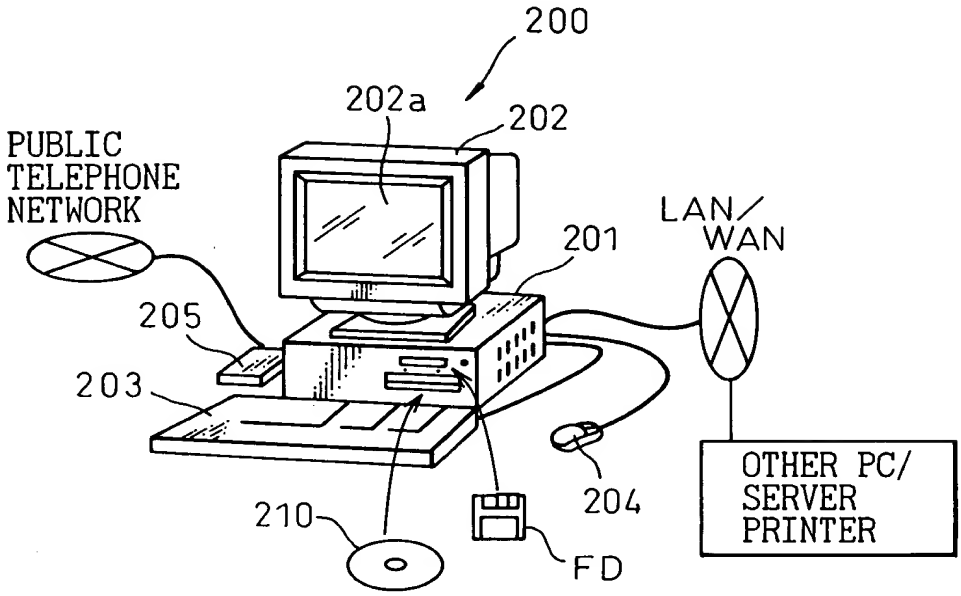
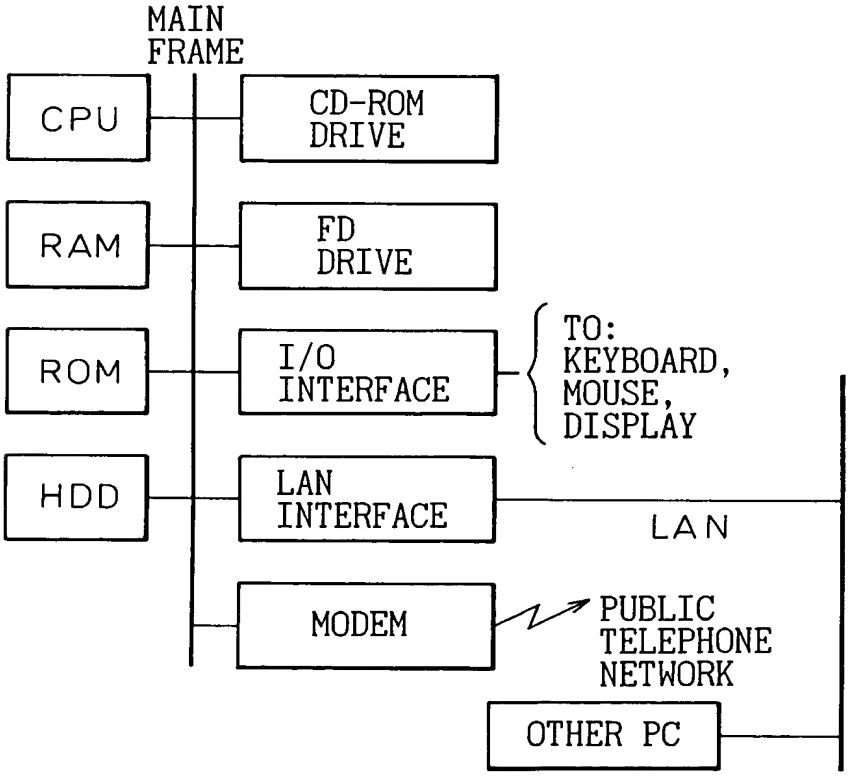
Fig.14B